



"Hemp: A Sustainable Revolution in Textiles and Construction with Revolutionary Profits for Irish Farmers"

A Presentation to the Hemp Horizons Conference

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Industrial hemp

A global game-changing agri-business opportunity that improves the environment, sequesters carbon efficiently, enables profitable and sustainable farming, and reduces the global usage of synthetic chemicals and damaging products



This Presentation is made in honour of Adrian Francis K. Clarke, the founder of TCI and the inventor of the world's best decorticator, a decorticator that does not need retting of hemp. Adrian died on 15 October 2015. He dedicated the last part of his life to solving the major problem of the hemp industry: how to decorticate without retting.





Australian Industrial Hemp Alliance Inc

The AIHA is a not-for-profit Association that was registered as an Incorporated Association with NSW Fair Trading on 23 January 2015.

The purpose of AIHA is to represent people and organisations involved in industrial hemp and associated products at a national level, to develop and grow the Australian industry. There are also various Industrial Hemp Associations in a number of States in Australia, some of which are members of the AIHA. The AIHA operates State Chapters in Queensland and Victoria.

The AIHA is Australia's peak national body for industrial hemp. Our members operate in the product areas of food, fibre, hurd and medicinal cannabis.



Federation of International Hemp Organisations

The FIHO Mission

- Bring together industry leaders, market expertise, and resources
- Speak with one voice on hemp issues at the global level
- Identify and create opportunities to scale sustainable hemp production, marketing, and trade
- Benefit the global hemp industry, consumers and the environment.



Decortication

The most expensive step in using hemp was the process of separating the hemp stalk into its component parts of FIBRE and HURD; this process is known as 'DECORTICATION'.

Textile & Composite Industries Pty Ltd, driven by its philosophy of helping farmers to become more profitable, independent, environmentally green, and sustainable, has developed a DECORTICATING MACHINE over the past 27 years that eliminates these expensive processing costs.



Retting

For the past 8000+ years, the only way to separate the hemp plant into its component parts was to commence with 'retting' the harvested stalk.

Retting is a rotting process, designed to break down the molecular bonds within the plant via biological action. Retting can be achieved in a number of ways: soaking in hot water, leaving harvested stalks in the field for 3-6 weeks, steaming the stalks, or a combination.

Retting is expensive, labour intensive, time-consuming and entirely inappropriate for our Australian climate.



The opportunities in the hemp industry

There are highly-profitable opportunities for:

- Farmers
- Investors
- Designers of machinery, industrial products and systems
- Manufacturers of textiles and composites
- Food and cosmetics manufacturers
- Retailers
- Agricultural machinery suppliers
- Agricultural support services



HemP: HP x 4

(c) Charles Kovess



**Healthy
PRODUCTS**



**Healthy
PEOPLE**



**Healthy
PLANET**



**Healthy
PROFITS**

One plant 10 categories of products!



FOOD



CLOTHING



BUILDING



MEDICINE



FUEL

HEMP

FERTILISER



COMPOSITE
FIBRE



BODY CARE



ROPE, TWINE



PACKAGING





Profitability of hemp growing

Key indicative numbers for one hectare

Seed cost \$10 per kg for 50 kgs per ha	\$ 500
Other growing costs up to harvest	\$ 1200-1500
TOTAL COSTS	\$ 1700-2000
Harvesting & processing costs	\$ 4000
Products for sale	
Fibre (3 tonnes @ \$2500 per tonne)	\$ 7500
Hurd (7 tonnes @ \$1000 per tonne)	\$ 7000
Seed (1 tonne @ \$3000 per tonne)	\$ 3000
Total value of products	\$17,500



hemp stalk

Hurd

- animal bedding
- mulch
- chemical absorbant
- fiberboard
- insulation
- concrete

Bast
Fiber

- cordage/rope
- netting
- canvas
- carpet
- biocomposites
- non-wovens
- clothes
- shoes
- bags

Stalk

- biofuel/ethanol
- paper products
- cardboard
- filters





Ideal fibre hemp crops

These crops are 3-4 metres tall and were grown in 90-100 days.

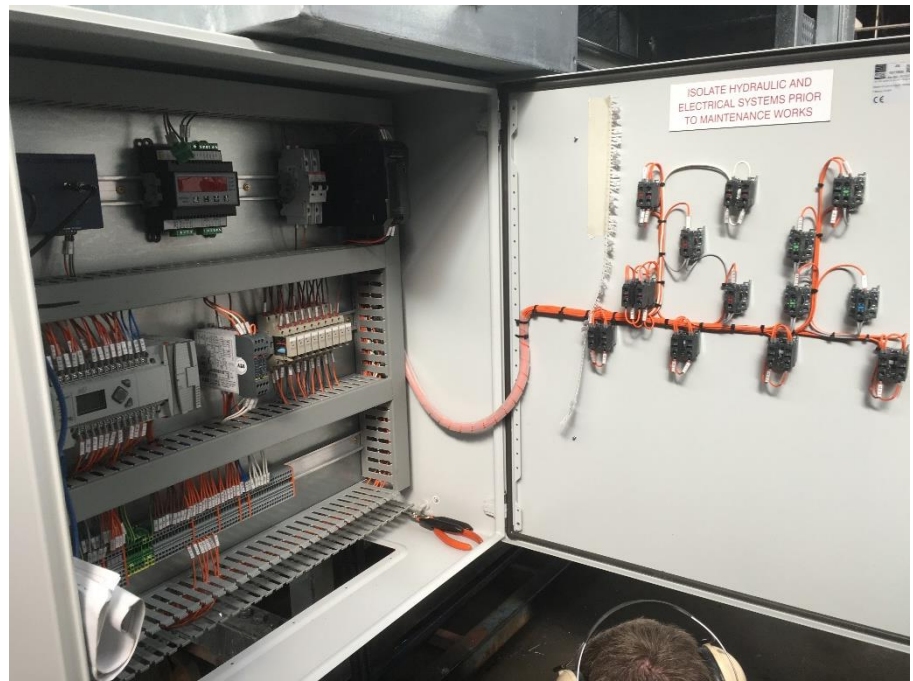
They yield 3 tonnes of fibre, and 7 tonnes of Hurd, on average, per hectare.





D8 Decorticator that overcomes the problem of retting







D8 Decorticator in 2012





D8 Decorticator in 2016





D8 Decorticator in 2018.





Hemp fibre and hurd

Hemp fibre and hurd is now significantly more cost effective to produce without retting by using TCI's

D8 Decorticator.

It now provides a very real substitute for existing products in the market.

Raw hemp fibre



Degummed hemp fibre for textile use





Hurd

The secondary product that is produced is the Hurd.

Hurd can be used to make hempcrete, paper, cellulose plastics, cellulosic materials, fuel ethanol, building products and building walls.





A Hemp Hurd and binder wall.

This wall gives maximum insulation and yet it breathes.

It is also fire resistant.

Houses made from hempcrete are ideal for fire-prone areas.





A beautiful hempcrete wall at Freshwater Creek, Victoria, showing some artistic design possibilities



Hemp composites

Hemp composites are light and strong, the ideal replacement for fibreglass and some carbon fibre

Shipping Pallets and caravans and even car bodies can be made from unretted hemp fibre





10 Significant Advantages of Industrial Hemp

1. Environmentally clean
2. Efficiently and effectively sequesters CO₂: 22 tonnes of CO₂/ha
3. Minimal fertilisers and zero chemicals
4. Efficient water use
5. Improves soil
6. Attractive profits
7. Natural anti-bacterial, anti-microbial and anti-mould
8. Each product has competitive advantages
9. Can value-add to hemp raw materials in multiple ways
10. Supply local and global markets: 'different strokes for different folks'



Best value-added hemp-based products

The best value-added hemp-based products to focus on in the next five years for both local and global markets are:

1. Fibre for clothing textiles
2. Fibre for biodegradable weed matting
3. Hurd for hempcrete and various building purposes
4. Fibre for insulation
5. Hurd for horse bedding and poultry bedding
6. Seed for local planting or export for planting



Best value-added hemp-based products

7. Seed for food
8. Seed for cosmetics
9. Fibre for composites particularly shipping pallets, building components, car parts, caravans and trailers
10. Fibre and hurd for edible food containers
11. Fibre and hurd to replace plastics
12. Hurd for ethanol
13. Fibre for ropes, baling twine, string
14. Fibre for medical bandages
15. Hurd for garden mulch



Five Strategic Initiatives

Successful competition against other products and successful global hemp industry growth requires Five Strategic Initiatives.



1. Generate Market Demand for Hemp rather than Farmer Push.

Identify well-funded and successful businesses that have already publicly committed to reduce their negative environmental impact and EDUCATE THEM about the potential for unretted hemp to be the way that they can solve their environmental challenges



2. Embrace an abundance philosophy and not one of scarcity.

Hemp can radically improve the lives of 70% of the world's population who today cannot afford to buy a new cotton shirt. Future sustainable economic growth will come from this 70%, not the existing 30% of consumers.

Additionally, as standards of living rise and consumption per capita increases, industrial hemp will be desperately needed as the prime source of new raw materials on our planet.



3. Avoid commoditisation of hemp products.

Do not fall into this trap. Avoid the current fate of oil producers, iron ore producers, sugar cane and milk producers: in their cases, it is the traders who make the bulk of the profits, not the producers or growers.

Do not give away this magnificent raw material at a cheap price.



4. Harness the skills, experience and relationships in local communities to identify the hemp products that should be produced, and then supply the hungry markets that want these products both locally and globally



5. Educate local and global businesses that are committed to ESG and Circular Economy principles that industrial hemp is the solution that they have been seeking.



5 Recommendations to the Victorian Government

Parliamentary Inquiry into Industrial Hemp by Charles Kovess

1. Governments must be encouraged and informed so they remove unnecessary impediments to the use of industrial hemp.
2. Large companies need to educate themselves on hemp solutions and then invest serious funds to create the solutions for their business activities.
3. Large investment funds, superannuation funds and investors that wish to save our planet need to put money into hemp, to convert it from a cottage industry that is unnecessarily blocked by governments and red tape into one of the world's major industries.
4. Government authorities are very often risk averse and unwilling to innovate without incontrovertible proof. Such authorities must be encouraged and informed so they shift that attitude and give preference to hemp solutions.
5. The people of Victoria and Australia need to demand hemp products and solutions.



AIHA is promoting organic, biodynamic and biological farming practices and production and has established a 'Regenerative Agriculture' subcommittee.

Hemp is naturally antibiotic and cuts UV rays.

Hemp will enable regional industries and economies to flourish.



Industrial hemp, WITHOUT RETTING, can make an immediate, inspiring, nurturing, positive, sustaining and life-giving difference to the planet.

Your job is to share the ideas, insights and possibilities that have occurred to you by experiencing this Presentation, to create a surge in economic activity, jobs and skills development.



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